We claim:

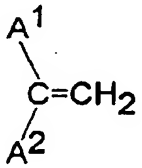
1. A process for the preparation of surfactant alcohols and surfactant alcohol ethers by derivatization of olefins having from about 10 to 20 carbon atoms or of mixtures of such olefins and optionally subsequent alkoxylation, which comprises
   a) subjecting a C_4-olefin mixture to metathesis,
   b) separating off olefins having from 5 to 8 carbon atoms from the metathesis mixture,
   c) subjecting the separated-off olefins individually or as a mixture to dimerization to give olefin mixtures having from 10 to 16 carbon atoms,
   d) subjecting the resulting olefin mixture, optionally after fractionation, to derivatization to give a mixture of surfactant alcohols, and
   e) optionally alkoxylating the surfactant alcohols.

2. A process as claimed in claim 1, wherein the process step a), the metathesis, is carried out in the presence of catalysts containing molybdenum, tungsten or rhenium.

3. A process as claimed in at least one of claims 1 and 2, which comprises, in process step b), separating off the olefins having 5 and 6 carbon atoms.

4. A process as claimed in at least one of claims 1 to 3, wherein process step c), the dimerization, is carried out with heterogeneous catalysis.

5. A process as claimed in at least one of claims 1 to 4, wherein a dimerization catalyst is used which contains at least one element from subgroup VIII of the Periodic Table of the Elements,
and the catalyst composition and the reaction conditions are chosen such that a dimer mixture is obtained which comprises less than 10% by weight of compounds which have a structural element of the formula I (vinylidene group)



(I)

in which A^1 and A^2 are aliphatic hydrocarbon radicals.

6. A process as claimed in at least one of claims 1 to 5, wherein, in process step c) olefins having 5 and 6 carbon atoms are dimerized individually or in a mixture.

7. A process as claimed in at least one of claims 1 to 6, wherein, in process step c), 3-hexene is dimerized.

8. A process as claimed in at least one of claims 1 to 7, wherein the derivatization (process step d)) is carried out by hydroformylation.

9. A novel olefin mixture preparable by process steps a), b) and c) of the process of claim 1.

10. An olefin mixture as claimed in claim 9, which has a proportion of unbranched olefins of less than 25% by weight, preferably less than 20% by weight.

11. An olefin mixture as claimed in at least one of claims 9 and 10, wherein at least 80% of the components of the dimerization mixture have, in the range from 1/4 to 3/4, preferably from 1/3 to 2/3, of the chain length of their main chain, one branch, or two branches to adjacent carbon atoms.

12. An olefin mixture as claimed in at least one of claims 9 to 11, wherein, at the branching sites of the main chain, predominantly groups having (y-4) and (y-5) carbon atoms are bonded, where y is the number of carbon atoms in the monomer used for the dimerization.

13. An olefin mixture as claimed in at least one of claims 9 to 12, wherein the ratio of aliphatic to olefinic hydrogen atoms is in the range $H_{aliph.} : H_{olefin.} = (2*n-0.5) : 0.5$ to $(2*n-1.9) : 1.9$, where n is the number of carbon atoms in the olefin obtained in the dimerization.

14. An olefin mixture as claimed in at least one of claims 9 to 13, wherein the ratio of aliphatic to olefinic hydrogen atoms is in the range

$H_{aliph.} : H_{olefin.} = (2*n-1.0) : 1$ to $(2*n-1.6) : 1.6$.

15. A novel surfactant alcohol preparable by the process steps a), b), c), d) and optionally e) of the process of claim 1, and its alkoxylation products.

16. The use of the surfactant alcohol alkoxylation products of claim 15 as nonionic surfactants.

17. The use of the surfactant alcohol of claim 15 for the preparation of surfactants.

18. The use of the surfactant alcohol of claim 15 for the preparation of alkanol glycoside and polyglycoside mixtures by single or multiple reaction (glycosylation, polyglycosylation) with mono-, di- or polysaccharides with the exclusion of water and with acid catalysis or with O-acetylsaccharide halides.

19. The use of the surfactant alcohol and its alkoxylation products of claim 15 for the preparation of surface-active sulfates by esterification thereof with sulfuric acid or sulfuric acid derivatives to give acidic alkyl sulfates or alkyl ether sulfates.

20. The use of the surfactant alcohol and its alkoxylation products of claim 15 for the preparation of surface active phosphates by esterification thereof with phosphoric acid or its derivatives to give acidic alkyl phosphates or alkyl ether phosphates.